

Summary of JP 50-161024U

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[Title of the invention] A LIQUID FUEL CELL

[Problems] The liquid fuel cell having a cell stack assembly in the conventional invention, atomized fuel is generated by using a humidifier. However, since a piezoelectric vibrator is used for the humidifier, vibration of the humidifier is transmitted to the cell stack assembly. In this case, there is a problem that parts of the cell stack assembly are damaged by the vibration.

[Object] The object of the present invention is to solve the above mentioned problem.

[Summary of Description] Fig. 1 shows a structure of the liquid fuel cell of the present invention. The liquid fuel cell includes a cell stack assembly 1. The cell stack assembly 1 is provided on a base 3 through an elastic body 2, and includes a plurality of unit cells stacked one after the other. The base 3 has holes through which atomized fuel (hydrazine) 4 passes, and is held between a cell cover 7 and a fuel tank (hydrazine tank) 6 through elastic bodies 2'. A humidifier 8 for atomizing liquid fuel (hydrazine) 7 is provided on the bottom of the fuel tank 6. The humidifier 8 is driven by an oscillator 9. The cell cover 7 includes a fan 10 and a fan motor 11 for driving the fan 10 to circulate the atomized fuel 4. The cell cover 7 further includes a check valve 12 at a vent 13 for removing nitrogen gas generated by reaction between hydrazine and oxygen in the air. An air pump 14, a manual valve 15, and a fuel supply port 16 are also provided.

Fig. 2 shows a cross sectional structure of a part of the unit cell. The unit cell includes a fuel (hydrazine) electrode 17, an air electrode 18, a fuel (hydrazine) region 19, an electrolyte region 20, and an air region 21. Electrolyte such as caustic potash of 20% to 35% is statically set in the electrolyte region 20 or impregnated in a matrix in the electrolyte region 20. In the cell stack assembly 1, the plurality of unit cells is stacked such that the fuel electrode 17 is positioned above the air electrode 18 in each unit cell. An air supplying port 23, an air exhaust port 24, an atomized fuel supplying port 25, and an atomized fuel exhaust port 26 are also provided.

As mentioned above, in the liquid fuel cell of the present invention, the cell stack assembly is provided on the base through the elastic body, and the fuel tank and the cell cover are provided on the base through the other elastic bodies. Therefore, vibration generated by the humidifier is absorbed by these elastic bodies not to be transmitted to the cell stack assembly, thereby lifetimes of parts constituting the cell stack assembly can be extended without sufficiently decreasing an weight efficiency and an volume efficiency of the liquid fuel cell.